

-continued

Compound a.i./ha		expected additive effect	synergistic effect
Echinochloa control			
Atrazine 1500	23	—	
Dimethenamid/Atrazine 1080/750	30	—	
Sulcotrione/Atrazine 150/750	26	—	
Sulcotrione/Atrazine 210/750	33	—	
Dimethenamid/Sulcotrione/ Atrazine 1080/150/750	95	56	+39
Dimethenamid/Sulcotrione/ Atrazine 1080/210/750	97	59	+42
Solanum/ Chenopodium			
Atrazine 1500	16	—	
Dimethenamid/Atrazine 1080/750	36	—	
Sulcotrione/Atrazine 150/750	23	—	
Sulcotrione/Atrazine 210/750	53	—	
Dimethenamid/Sulcotrione/ Atrazine 1080/150/750	97	53	+44
Dimethenamid/Sulcotrione/ Atrazine 1080/210/750	100	89	+11

The synergistic effect is clearly visible at the lower rates of sulcotrione, resulting in a nearly doubled degree of control, compared to the expected additive efficacies. For the higher rates of sulcotrione, (>300 g/ha) only the additive effect remains visible since the total control is 100%.

EXAMPLE 5

A field trial is carried out on plots (2x20 m) planted with sugar cane and infested with *Cyperus rotundus* in the first or second growing stage and sprayed with a backpack sprayer in different concentrations in a tank mix. The amount of liquid spray broth is 400 l/ha. The application rates are 2.7 kg/ha of dimethenamid with 60 g/ha of chlorimuron or with 1.6 kg/ha of a fixed ratio mixture of chlorimuron and diuron (1:19) which is commercially available as FRONT®. Visual evaluation is done 30 or 60 days after treatment (DAT) in percentage of control. The expected additive effect value is calculated according to the method of Colby:

Compound a.i./ha conditions	Cyperus Control (DAT)	expected additive effect	synergistic effect
light to medium soil			
Dimethenamid 2.7 kg	19 (60 DAT)	—	
Chlorimuron/Diuron 1.6 kg	45 (60 DAT)	—	
Dimethenamid/Chlorimuron/ Diuron 2.7 + 1.6 kg heavy soil	76 (60 DAT)	55	+21
light to medium soil			
Dimethenamid 2.7 kg	10 (60 DAT)	—	
Chlorimuron/Diuron 1.6 kg	37 (60 DAT)	—	
Dimethenamid/Chlorimuron/ Diuron 2.7 + 1.6 kg light to medium soil	74 (60 DAT)	43	+31
light to medium soil			
Dimethenamid 2.25 kg	23 (30 DAT)	—	
Chlorimuron/Diuron 1.2 kg	48 (30 DAT)	—	
Dimethenamid/Chlorimuron/ Diuron 2.25 + 1.2 kg	80 (30 DAT)	60	+20

Compound a.i./ha conditions	Cyperus Control (DAT)	expected additive effect	synergistic effect
light to medium soil			
Diuron 2.25 + 1.2 kg	—	—	
Dimethenamid 2.7 kg	27 (30 DAT)	—	
Chlorimuron/Diuron 1.2 kg	48 (30 DAT)	—	
Dimethenamid/Chlorimuron/ Diuron 2.7 + 1.2 kg light to medium soil	88 (30 DAT)	62	+26
light to medium soil			
Dimethenamid 2.7 kg	27 (30 DAT)	—	
Chlorimuron 0.06 kg	58 (30 DAT)	—	
Dimethenamid/Chlorimuron 2.7 + 0.06 kg	93 (30 DAT)	69	+24

The achieved results indicate that synergistic effects are obtained with the 2-way mix (dimethenamid/chlorimuron), as well as with the 3-way mix (dimethenamid/chlorimuron/diuron).

EXAMPLE 6

In the procedure as set out in Example 5, tank mixtures of 5.7 kg/ha of alachlor or 4.3 kg/ha of metolachlor with 1.2 kg/ha of the fixed ratio mixture of chlorimuron and diuron (1:19; commercial FRONT®) were applied to a sugar cane field. The results were as follows:

Compound a.i./ha conditions	Cyperus Control (DAT)	expected additive effect	synergistic effect
light to medium soil			
Alachlor 5.4 kg	30 (30 DAT)	—	
Chlorimuron/Diuron 1.2 kg	48 (30 DAT)	—	
Alachlor/Chlorimuron/ Diuron 5.4 + 1.2 kg light to medium soil	85 (30 DAT)	64	+21
light to medium soil			
Metolachlor 4.3 kg	23 (30 DAT)	—	
Chlorimuron/Diuron 1.2 kg	48 (30 DAT)	—	
Metolachlor/Chlorimuron/ Diuron 4.3 + 1.2 kg	89 (30 DAT)	60	+29

What is claimed is:

1. (Amended) A herbicidal composition comprising a herbicidally effective aggregate amount of dimethenamid and a second herbicide selected from the group consisting of triketone or dione herbicides and triazine herbicides [and dimethenamid in a weight ratio between 1:2 and 1:10].

2. (Amended) A composition according to claim 1 [further comprising] wherein the second herbicide is a triazine herbicide at a weight ratio of 3:1 to 1:3 relative to the dimethenamid content.

3. (Amended) A method of controlling undesired plant growth in the presence of a crop comprising applying to the locus of said undesired plant growth a herbicidally effective aggregate amount of dimethenamid and a second herbicide selected from the group consisting of triketone or dione herbicides and triazine herbicides [wherein the application rate of dimethenamid is from 0.1 to 3.0 kg/ha].

4. (Amended) A method according to claim 3 wherein the second herbicide is a triketone or dione herbicide and is selected from the group consisting of 2-(2-chloro-4-methanesulfonylbenzoyl)-1,3-cyclohexanedione; 2-(4-methylsulfonyloxy-2-nitrobenzoyl)-4,4,6,6-tetramethyl-1,3-

cyclohexane; 3-(4-methylsulfonyloxy-2-nitrobenzoyl)-bicyclo[3,2,1]octane-2,4-dione; 3-(4-methylsulfonyl-2-nitrobenzoyl)-bicyclo[3,2,1]octane-2,4-dione; 4-(4-chloro-2-nitrobenzoyl)-2,6,6-trimethyl-2H-1,2-oxazine-3,5(4H,6H)dione; 4-(4-methylthio-2-nitrobenzoyl)-2,6,6-trimethyl-2H-1,2-oxazine-3,5(4H,6H)dione; 3-(4-methylthio-2-nitrobenzoyl)-bicyclo[3,2,1]octane-2,4-dione; 4-(2-nitro-4-trifluoromethoxybenzoyl)-2,6,6-trimethyl-2H-1,2-oxazine-3,5(4H,6H)dione.

5. (Amended) A method according to claim [3] 4 wherein the triketone or dione is 4-(4-chloro-2-nitrobenzoyl)-2,6,6-trimethyl-2H-1,2-oxazine-3,5(4H,6H)dione.

6. (Amended) A method according to claim 3 [further comprising] wherein the second herbicide is a triazine herbicide.

7. A method according to claim 3 wherein the crop is maize.

8. A method according to claim 3 wherein the crop is sugar cane.

9. A method according to claim 3 wherein the application rate of dimethenamid is from 0.25 to 1.5 kg/ha.

10. (Amended) A method according to claim 3 wherein the dimethenamid and the second [triketone or dione] herbicide are applied postemergence.

11. (Amended) A method according to claim 3 wherein the dimethenamid and the second [triketone or dione] herbicide are applied preemergence.

12. A method according to claim 3 wherein the undesired plant growth is a broadleaf weed.

13. A method according to claim 3 wherein the undesired plant growth is a grassy weed.

14. (New) A composition according to claim 1 wherein the second herbicide is a triketone or dione herbicide at a weight ratio between 1:2 and 1:10 relative to the dimethenamid content.

15. (New) A composition according to claim 14 wherein the triketone or dione herbicide is selected from the group consisting of 2-(2-chloro-4-methanesulfonylbenzoyl)-1,3-cyclohexanedione; 2-(4-methylsulfonyloxy-2-

nitrobenzoyl)-4,4,6,6-tetramethyl-1,3-cyclohexane; 3-(4-methylsulfonyloxy-2-nitrobenzoyl)-bicyclo[3,2,1]octane-2,4-dione; 3-(4-methylsulfonyl-2-nitrobenzoyl)-bicyclo[3,2,1]octane-2,4-dione; 4-(4-chloro-2-nitrobenzoyl)-2,6,6-trimethyl-2H-1,2-oxazine-3,5(4H,6H)dione; 4-(4-methylthio-2-nitrobenzoyl)-2,6,6-trimethyl-2H-1,2-oxazine-3,5(4H,6H)dione; 3-(4-methylthio-2-nitrobenzoyl)-bicyclo[3,2,1]octane-2,4-dione; 4-(2-nitro-4-trifluoromethoxybenzoyl)-2,6,6-trimethyl-2H-1,2-oxazine-3,5(4H,6H)dione.

16. (New) A composition according to claim 14 wherein the triketone or dione herbicide is 4-(4-chloro-2-nitrobenzoyl)-2,6,6-trimethyl-2H-1,2-oxazine-3,5(4H,6H)dione.

17. (New) A composition according to claim 1 wherein the second herbicide includes a triketone or dione herbicide at a weight ratio between 1:2 and 1:10 relative to the dimethenamid content and a triazine herbicide at a weight ratio of 3:1 to 1:3 relative to the dimethenamid content.

18. (New) A composition according to claim 2 wherein the triazine herbicide is selected from the group consisting of atrazine, metribuzin, cyanazine, simazine, prometon, ametryn, prometryn and hexazinone.

19. (New) A composition according to claim 2 wherein the triazine herbicide is atrazine.

20. (New) A method according to claim 3 wherein the second herbicide is a triketone or dione herbicide.

21. (New) A method according to claim 3 wherein the second herbicide includes a triketone or dione herbicide and a triazine herbicide.

22. (New) A method according to claim 3 wherein the application rate of dimethenamid is from 0.1 to 3.0 kg/ha.

23. (New) A method according to claim 6 wherein the triazine herbicide is selected from the group consisting of atrazine, metribuzin, cyanazine, simazine, prometon, ametryn, prometryn and hexazinone.

24. (New) A method according to claim 6 wherein the triazine herbicide is atrazine.

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